

REMARKS

Reconsideration and allowance of the above-identified application are respectfully requested. Claims 2-23, 25, 26 and 28-48 are currently pending. Claims 1, 24 and 27 have been cancelled. In response to the last office action, Claims 4, 25, 28 and 38 which were objected to as being dependant upon a rejected base claim but were indicated contain allowable subject matter and were rewritten into independent form including all the limitations of the base claim and any intervening claims. In the outstanding office action, claims 2-23 and 38-46 have been rejected while claims 25, 26 and 28-37 while claims 47 and 48 are objected to.

It should be noted that claims 39 – 48 depend from allowed claim 28 and therefore should be indicated as allowable.

Applicant's invention is directed to methods and systems for encoding signals. As recited in Claim 4 for example, a method of encoding a sequence of information bits into encoding bits and parallel bits, encoding said encoding bits to produce encoded bits, mapping said encoded bits and said parallel bits into first and second pulse amplitude modulation (PAM) signals, and generating a quaternary amplitude modulation (QAM) signal from said first and second PAM signals and identifying whether a number of said information bits is odd or even.

In rejecting claims 4 and 38, the Office Action recognizes that Jin does not expressly teach the step of mapping as set forth in the claim, but asserts that the combination of Jin with the Proakis textbook excerpt meets the mapping requirement of the claim based upon the general disclosure of Jin of a constellation encoder structure and Proakis' statement that the bandwidth efficiency of PAM/SSB can also be obtained by simultaneously impressing two separate k-bit symbols from the information sequence $\{a_n\}$ on two quadrature carriers....

Neither Proakis nor Jin disclose mapping said encoded bits and said parallel bits into first and second pulse amplitude modulation (PAM) signals, and generating a quaternary amplitude modulation (QAM) signal from said first and second PAM signals. It is pure hindsight that one of ordinary skill in the art would come to the claimed invention based on the combined disclosures of Jin and Proakis. Further, there is no basis for combining the disclosures of Jin and Proakis since there is no suggestion in either reference that one would be combined with the other.

Obviousness, ultimately, is a determination of law based on underlying determinations of fact. Monarch Knitting Machinery Corp. v. Sulzer Morat GmbH, 139 F. 3d 877, 881 (Fed. Cir. 1998) "These underlying factual determinations include (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and, (4) the extent of any proffered objective indicia of non-obviousness." Id.

"During examination, *the examiner bears the initial burden of establishing a prima facie case of obviousness*...The prima facie case is a procedural tool, and requires the examiner to *initially produce evidence to support a ruling of obviousness*. In re Kumar, 418 F.3d 1361, 1366, 76 USPQ 1048 (Fed. Cir. 2005)(emphasis added).

The invention must be considered as a whole without the benefit of hindsight, and the claims must be considered in their entirety. Rockwell International Corp. v. United States, 147 F.3d 1358, 1364 (Fed. Cir. 1998)

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 837 F.2d 1071, 5 USPQ 2d 1596, 1600 (Fed. Cir. 1988). It is impermissible to use the claimed invention as a blueprint from which to reconstruct the prior art to satisfy the claimed invention. Interconnect Planning Corp. v. Feil,

774 F.2d 1132, 227 USPQ 543, 548 (Fed. Cir. 1985) ("From its discussion of the prior art it appears to us that the court, guided by the defendants, treated each reference as teaching *one* or more of the specific components for use in the Feil system, although the Feil system did not then exist. Thus the court reconstructed the Feil system, using the blueprint of the Feil claims. As is well established, this is legal error.")

The prior art must be considered as a whole and suggest the desirability and thus the obviousness of making the combination. Lindermann Maschinefabrik GmbH v. American Hoist and Derrick Co., 730 F.2d 1452, 1462, 221 USPQ 481, 488 (Fed. Cir. 1984)

There must be a suggestion or motivation in the prior art to modify a reference to satisfy the claimed invention. In re Gordon, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "*The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.*" *Id.* (emphasis added)

"When an obviousness determination is based *on* multiple references, there must be a showing of some 'teaching, suggestion, or reason' to combine the references...Although a reference need not expressly teach that the disclosure contained therein should be combined with another the showing of combinability, in whatever form, must be '*clear and particular*'." Winner International Royalty Corp. v. Wang, 202 F.3d 1340, 1348-1349 (Fed. Cir.), cert. denied, 530 U.S. 1238 (2000)(emphasis added)

"'The factual inquiry whether to combine references must be thorough and searching'...*It must be based on objective evidence of record.* This precedent has been reinforced in myriad decisions and cannot be dispensed with... The need for specificity pervades this authority...This factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority...'Common knowledge and

common sense,' even if assumed to derive from the agency's expertise, do not substitute for authority when the law requires authority." In re Lee, 277 F.3d 1338, 1343-1345 (Fed. Cir. 2002)

The Office Action further recognizes that Jin fails to teach the step of identifying a number of the information bits being odd and even as claimed in Claim 4. Jin does not teach an identifying step. Again, the assertion that this step is obvious in view of Jin is purely hindsight.

Dependant claims 2, 3 and 5-23 should be allowable for the reasons set forth above and further in view of the various limitations presented therein in combination with the limitations of Claim 4.

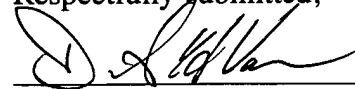
Applicant has made a diligent and bona fide effort to answer each and every ground for rejection or objection to the specification including the claims and to place the application in condition for allowance. Reconsideration and further examination is respectfully requested, and for the foregoing reasons, Applicant respectfully submits that this application is in condition to be passed to issue and such action is earnestly solicited.

It is believed that no additional fees are presently due. However, should that determination be incorrect, the undersigned hereby authorizes the Patent Office officials to debit Deposit Account No. 50-0562 to satisfy any and all fees which may be due. Should the Examiner wish to discuss this matter further, please contact the undersigned at the below listed number.

Dated: April 20, 2006

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Respectfully submitted,



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